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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,273	11/23/2001	Chun-Yang Hsiao	MR2707-3	2404
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ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			EXAMINER KIM, DAVID S	
			ART UNIT 2633	PAPER NUMBER

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/990,273

Applicant(s)

HSIAO ET AL.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:  
On p. 4, l. 23, "FIG. 1" is used where -- FIG. 2 -- may be intended.  
On p. 7, l. 3, "multiplexer 24B" is used where -- multiplexer 30B -- may be intended.  
Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-2, 4, and 7-8** are rejected under 35 U.S.C. 102(b) as being anticipated by Carmen et al. (U.S. Patent No. 5,155,614, hereinafter "Carmen") and SGS-Thomson ("Octal bus buffer with 3 state outputs HC 540: inverted - HC 541 non inverted").

**Regarding claim 1**, Carmen and SGS-Thomson disclose:

An ultrasonic and infrared transmitter with tunable carrier frequency comprising:

a frequency divider (Carmen, Fig. 5, microprocessor 246, col. 9, l. 52-56; divider 250) for receiving an oscillation frequency (Carmen, oscillator 248) and dividing said frequency to produce a carrier signal;

a multiplexer (Carmen, LED driver 252) for receiving said carrier signal (Carmen, signal on line 260) from said frequency divider and a data signal (Carmen, SDT- on line 263) and controlling outputs by use of a select control signal (Carmen, TXEN- on line 264);

an output buffer (Carmen teaches that LED driver 252 may be an HC541; SGS-Thomson shows the details of an HC541, which includes buffers, conventionally designated by the

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triangles in the figure on p. 1) connected to said multiplexer for outputting said carrier signal;  
and

an infrared light emitting diode (Carmen, LEDs 232) or ultrasonic transducer connected to said output buffer for transmitting an infrared or ultrasonic carrier signal.

**Regarding claim 2**, Carmen and SGS-Thomson disclose:

An ultrasonic and infrared transmitter according to claim 1 wherein said multiplexer controls said outputs by use of said select control signal (Carmen, TXEN- on line 264) for infrared or ultrasonic transmission and data input/output.

**Regarding claim 4**, Carmen and SGS-Thomson disclose:

An ultrasonic and infrared transmitter according to claim 1 further comprising at least one output port for outputting infrared carrier signals (Carmen, LEDs 232).

**Regarding claims 7-8 and 10**, claims 7, 8, and 10 are apparatus claims that correspond to apparatus claims 1, 2, and 4, respectively. Therefore, the recited means in apparatus claims 1-2 and 4 read on the corresponding means in apparatus claims 7-8 and 10.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 3 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carmen and SGS-Thomson in view of the admitted prior art (hereinafter, "APA").

**Regarding claim 3**, Carmen and SGS-Thomson do not expressly disclose:

An ultrasonic and infrared transmitter according to claim 1 further comprising at least one output port for outputting *ultrasonic* carrier signals.

Rather, in the discussion of the corresponding receiver to this transmitter, Carmen teaches the use of particular circuitry with a photodiode in the receiver to receive *infrared* communications from this transmitter (Carmen, col. 22, l. 16-19). However, *ultrasonic* carrier signals are extremely well known in the art. Additionally, Carmen teaches the use of this particular circuitry with an *ultrasonic* detector (Carmen, col. 22, l. 19-27). Moreover, the APA also teaches infrared and ultrasonic transmitters. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange the transmitter of Carmen and SGS-Thomson to comprise at least one output port for outputting *ultrasonic* carrier signals. One of ordinary skill in the art would have been motivated to do this in the case that the corresponding receiver of Carmen employs an *ultrasonic* detector (Carmen, col. 22, l. 19-27). Another motivation would be to resist signals from widely available infrared communication devices as hand-held infrared communication devices designed for use with television channel changing circuits or for use with other home entertainment devices such as compact disk players (Carmen, col. 4, l. 17-23); using ultrasonic carrier signals and equipment enables such resistance.

**Regarding claim 9**, claim 9 is an apparatus claim that corresponds to apparatus claim 3. Therefore, the recited means in apparatus claim 3 read on the corresponding means in apparatus claim 9.

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7. **Claims 5-6 and 11-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carmen and SGS-Thomson in view of IEEE Standard Dictionary of Electrical and Electronics Terms (hereinafter, "IEEE").

**Regarding claim 5**, Carmen and SGS-Thomson disclose:

An ultrasonic and infrared transmitter according to claim 1 further comprising two output ports for outputting ultrasonic or infrared carrier signals (note multiple LEDs 232)

Carmen and SGS-Thomson do not expressly disclose:

said carrier signals *having opposite phases*.

However, the usage of signals having opposite phases is well known in the art. IEEE teaches such usage in the conventional circuit type of push-pull circuits (p. 708). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ push-pull circuits to implement carrier signals *having opposite phases*. One of ordinary skill in the art would have been motivated to do this since push-pull circuits are conventionally used to provide the benefits of increasing desired output components and canceling unwanted ones (IEEE, p. 708), resulting in cleaner data transmissions and higher signal-to-noise ratios, as is desired by Carmen (col. 10, l. 34-41).

**Regarding claim 6**, Carmen and SGS-Thomson in view of IEEE disclose:

An ultrasonic and infrared transmitter according to claim 5 wherein said two output ports form a push-pull architecture (IEEE, p. 708) to drive an ultrasonic transducer or infrared light emitting diode.

**Regarding claims 11-12**, claims 11 and 12 are apparatus claims that correspond to apparatus claims 5 and 6, respectively. Therefore, the recited means in apparatus claims 5-6 read on the corresponding means in apparatus claims 11-12.

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**Double Patenting**

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. **Claims 1-12** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 and 4 of U.S. Patent No. 6,617,937 B2 in view of the APA and IEEE. Although the conflicting claims are not identical, they are not patentably distinct from each other because the invention of the instant application is an obvious variant of the invention of the patent.

Claim in instant application	Corresponding claim in patent	Limitation(s) in instant claim missing from patent claim and obviousness argument
1	2	
2	4	<p><b>Limitation:</b> an infrared light emitting diode or ultrasonic transducer connected to said output buffer for transmitting an infrared or ultrasonic signal</p> <p><b>Obviousness argument:</b> The invention of claims 1 and 4 of the patent is for infrared transmission. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ an infrared LED for this infrared transmission. One of ordinary skill in the art would have been motivated to do this since claim 2 shows the use of such an LED and since infrared LEDs are conventional means for infrared transmissions.</p>
3, 9	1	<p><b>Limitation:</b> at least one output port for outputting ultrasonic carrier signals</p> <p><b>Obviousness argument:</b> The invention of claim 1 of the patent is for infrared transmission. However, ultrasonic transmission is another</p>

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		conventional type of signal transmission. Also, the APA discusses transmitters for infrared and ultrasonic transmissions. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include at least one output port for outputting ultrasonic carrier signals. One of ordinary skill in the art would have been motivated to do this to provide the capability of enabling ultrasonic transmission to the invention of claim 1. One benefit of such enabling is an alternative transmission means in case the environment is not favorable for infrared transmissions.
4, 10	2	
5, 6, 11, 12	2	<p><i>Limitation:</i>            (claim 5 and 11) two output ports for outputting ultrasonic or infrared carrier signals having opposite phases            (claim 6 and 12) said two output ports form a push-pull architecture to drive an ultrasonic transducer or infrared light emitting diode</p> <p><i>Obviousness argument:</i>            However, the usage of signals having opposite phases is well known in the art. IEEE teaches such usage in the conventional circuit type of push-pull circuits (p. 708). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ push-pull circuits to implement carrier signals <i>having opposite phases</i>. One of ordinary skill in the art would have been motivated to do this since push-pull circuits are conventionally used to provide the benefits of increasing desired output components and canceling unwanted ones (IEEE, p. 708), resulting in cleaner data transmissions and higher signal-to-noise ratios.</p>
7	1	
8	4	

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK



JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600